Reed, Angel

From: Harrigan, Sandra

Sent: Monday, August 03, 2009 3:26 AM

To: Wendel.Jennifer@epamail.epa.gov

Cc: Alfano.Barbara@epamail.epa.gov; Jones.Katrina@epamail.epa.gov; Reed, Angel; Johnson, Andy; Tanya M Amme; Leslie Meador

Subject: TTEMI-05-003-0051 Kerr-McGee Chemical Corp - Jacksonville - HRS Documentation Record - Revision 1

Attachments: TTEMI-05-003-0051 Kerr-McGee Chemical Corp - Jacksonville_HRS Doc Record_RV1.doc; TTEMI-05-003-0051 Kerr-McGee Chemical Corp - Jacksonville_Response to QA Review Comments.pdf; TTEMI-05-003-0051 Kerr-McGee Chemical Corp - Jacksonville_HRS Doc Record_RV1.pdf

Hello Jennifer,

Attached is revision 1 of the HRS documentation record for the Kerr-McGee Chemical Corp – Jacksonville. Compact discs of the HRS documentation record in Microsoft Word and PDF, as well as all references will be delivered to your office as CSC on Tuesday morning.

Thanks and have a great day.

Sandra Harrigan| Project Manager
Direct: 678.775.3088|Cell: 678.773.5428
Fax: 678.775.3138
sandra.harrigan@ttemi.com
Tetra Tech EM Inc.
1955 Evergreen Boulevard| Building 200, Suite 300
Duluth, GA 30096| www.tetratech.com

TETRA TECH

August 3, 2009

Ms. Jennifer Wendel
National Priorities List Coordinator (NPL)
U.S. Environmental Protection Agency (EPA)
61 Forsyth Street, SW 11th Floor
Atlanta, GA 30303

Subject: **Kerr-McGee Chemical Corp - Jacksonville**
Hazard Ranking System Documentation Record, Revision 1
Response to EPA Headquarters (HQ) Quality Assurance (QA) Review Comments
EPA Contract Number (No.) EP-W-05-054
EPA Identification No. FLD039049101
Technical Direction Document (TDD) No. TTEMI-05-003-0051

Dear Ms. Wendel:

The Tetra Tech Superfund Technical Assessment and Response Team (START) is submitting the Hazard Ranking System (HRS) documentation record, revision 1, for Kerr-McGee Chemical Corp – Jacksonville located in Jacksonville, Duval County, Florida for EPA HQ QA review for the 51st Proposal to the NPL. Revision 1 of the HRS documentation record incorporates EPA HQ QA comments contained in QA letters received on May 19, 2009 and June 24, 2009, and two annotated HRS documentation record including: the sources and ground water migration pathway received on June 24, 2009 and the surface water migration pathway received on July 27, 2009. This submittal includes the following:

- HRS documentation record, hard copy and electronic copies in Microsoft Word and portable document file (PDF) format
- Compact disk containing a complete set of references including new and revised references
- Responses to EPA HQ QA comments

Please contact me (Shanna Davis) at (678) 775-3109 if you have any questions or comments regarding this submittal.

Sincerely,

Sandra Harrigan
START III Project Manager

Andrew F. Johnson
START III Program Manager

Enclosures

cc: Katrina Jones, EPA Project Officer
Darryl Walker, EPA Alternate Project Officer (letter only)
Angel Reed, START III Document Control Coordinator

1955 Evergreen Blvd., Suite 300, Duluth, GA 30096
Tel 678..775.3080 Fax 678.775.3138
www.tetratech.com

2nd QA Review of HRS Scoring Package for Proposal 51 – Response to Comments

Site Name: Kerr-McGee Chemical Corporation
Location: Jacksonville, Florida
Site Score: 50.00
Number of Pathways: 1 (ground water)

Region: 4
Preparer: Tetra Tech EMI
Reviewer: Tanya Amme, CSC
Date: August 3, 2009

1.0 Site Description and General Comments

1.1 Site Description

The Kerr-McGee Chemical Corporation (Kerr-McGee) (FLD039049101) site is located at 1611 Talleyrand Avenue in Jacksonville, Duval County, Florida. The property is approximately 31 acres and is currently unoccupied. The Kerr-McGee property is located in a heavily industrialized area in the Port of Jacksonville. The property is bordered by a Port of Jacksonville Marine Terminal (currently leased by Toyota) to the north, Deer Creek and industrial properties including CSX Railroad and Jones Chemical to the south, the St. Johns River to the east, and Talleyrand Avenue to the west.

From 1919 until 1970, operations at the Kerr-McGee property included a pesticide and herbicide formulation plant and a fertilizer and sulfuric acid manufacturing plant. The pesticide and herbicide formulation and blending plant, also known as the Florida Agricultural Supply Company (Fasco) plant, was located on the northwestern portion of the property, and the former fertilizer manufacturing plant was located on the eastern portion of the property. Sulfuric acid was manufactured in a sulfur plant located in the northeastern corner of the property. Kerr-McGee also operated a steel drum reconditioning facility near the pesticide storage warehouse. All of the process buildings have been demolished and only their foundations remain on the property. The Kerr-McGee property is currently undeveloped and covered in low vegetation such as native grasses and shrubs, with a small wooded area in the east-central portion of the Kerr-McGee property. The Kerr-McGee property is fenced and access is restricted by four locked gates, two located along Talleyrand Avenue, one on the southern fence line, and one on the eastern fence line.

Two sources have been identified on the Kerr-McGee property: Source No. 1, a backfilled surface impoundment located in the northwestern portion of the property, and Source No. 2, contaminated soil located throughout the property. Contamination in a shallow aquifer, namely alpha-BHC, arsenic, beta-BHC, DDD, dieldrin, endrin, gamma-chlordane, and lead, was documented significantly above background. Over one million people receive ground water drawn from the deeper Floridan Aquifer within the 4 miles of the sources.

1.2 General Comments

CSC has completed the 2nd quality assurance (QA) review of the first submittal Hazard Ranking System (HRS) scoring package for the Kerr-McGee Chemical Corporation site. During the 2nd

QA review, CSC verified reference citations and supporting documentation for all assertions made in the HRS documentation record.

Since submittal of the 1st QA review letter, dated May 15, 2009, CSC has received the following package components for review:

Description	Date Received
Additional references	5/14/2009

The results of the 2nd QA review are summarized below and are organized into the following sections:

- Cross-Cutting (e.g., issues that may impact more than one pathway) and Source Characterization Issues
- Technical Issues by Pathway
- Referencing and Editorial Issues
- Potential Listing Policy Issues

Major issues that may significantly impact the site score or overall package integrity are summarized under the appropriate section. Minor issues, or issues that may not significantly affect the overall site score but adversely affect the overall package integrity, are also summarized below. Following each issue summary is CSC's recommendation for resolution in italic type. Where feasible, the relevant section of the HRS rule or guidance material is cited to support the resolution and to provide further information regarding the issue. ***Note that the issues identified below include both unresolved issues from the 1st QA review, submitted May 15, 2009, and any new issues identified during reference verification.*** Where applicable, issues from the 1st QA review have been updated based on information and/or clarification provided by the Region during the June 2, 2009, conference call or identified in the references.

Minor documentation or editorial issues are noted in an annotated copy of the HRS documentation record. Although these minor documentation and editorial issues may have no significant impact on the HRS score or package integrity, CSC recommends that they be addressed to enhance clarity and accuracy.

2.0 Cross-Cutting and Source Characterization Issues

2.1 Pathways, Components, or Threats Not Scored

The pathway, components, or threats not scored section of the HRS documentation record discusses the presence of Level II concentrations of contaminants in the St. Johns River. Assuming that this contamination is attributable to the site, it is unclear why the surface water pathway was not scored.

CSC's suggestions in the 1st QA Review Letter were discussed during the June 2, 2009, conference call. The Region decided to add the surface water pathway to the HRS package for the next submission. The package preparer (Tetra Tech) indicated that it would try to use the most recent data available for documenting the observed release.

The surface water migration pathway was included in the HRS documentation record.

2.2 Rationale for Listing

The site description in the HRS documentation record ends by stating that a remedy has been selected for this site, so it is unclear why this site is being proposed to the National Priorities List (NPL).

CSC's suggestion in the 1st QA Review Letter was discussed during the June 2, 2009, conference call. The Region indicated that it would consult with its Regional Counsel, but its preference would be to remove the site remedy discussion from the HRS documentation record.

Tetra Tech has removed information about the remedy from the HRS documentation record.

2.3 Source 1 – Surface Impoundment

2.3.1 Source Description

The source description states that the surface impoundment was closed, but does not provide any details on the closure. It would be useful for understanding the source, and ensuring its eligibility, if it was known when and why the impoundment closed, who initiated the closure, and whether the closure was approved by EPA and/or the State.

CSC suggests that the Region clarify when/why the impoundment closed, who closed it, and whether the closure was approved by EPA and/or the State.

The impoundment was closed by Kerr-McGee during the shut down of the plant. This information has been included in the HRS documentation record

2.3.2 Source Sample

Page 21 of the HRS documentation record (section 2.4.2.1.3) indicates two different total depths of the surface impoundment, 10 feet and 13 feet below land surface (bls). As source sample KMC-IT-SB-3-10 was collected at 10 feet bls, it would be helpful to clarify whether this sample was indeed collected from within the impoundment and not below the impoundment. It would also be helpful to present an explanation of the depth discrepancy, if possible, in the source description (page 17) as well as in the volume discussion on page 21, so that the discrepancy is addressed at the same time the source sample depth is discussed.

CSC's suggestions in the 1st QA Review Letter were discussed during the June 2, 2009, conference call. The Region indicated that it may not have the logbook entry for the Source 1 sample to clarify this issue, but it would look into it further.

No additional information regarding the description or characteristics of sample KMC-IT-SB3-10 is available in Reference 5, Appendices D and F.

2.3.3 Rationale for No Source Background Sample

The HRS documentation record indicates the impoundment was designed to contain pesticide and herbicide waste; therefore, comparison to background is not needed. This explanation may not be adequate given that the impoundment has been backfilled and may now contain soil or a soil mixture.

CSC's suggestions in the 1st QA Review Letter were discussed during the June 2, 2009, conference call. The Region indicated that it would it would look into this issue further, and if the sample turns out to be a pure sludge sample the "no source background sample needed" rationale will remain. If the sample contained soil, it will be compared to an appropriate background sample from the data set for Source 2.

Appendices D and F of Reference 5 do not provide details on the description of the Source 1 sample. Because Tetra Tech could not verify whether the sample consisted of sludge or soil, sample KMC-IT-SB3-10 was compared to the background subsurface soil sample used for Source 2.

2.3.4 Source Hazardous Waste Quantity

Page 21 of the HRS documentation record (section 2.4.2.1.3) documents the Tier C (volume) calculations for the Source 1 hazardous waste quantity. A volume of 2,166.66 cubic yards was calculated to which the HRS Table 2-5 divisor of 13 was applied. However, this is the incorrect divisor. Thirteen is the divisor for a buried/backfilled surface impoundment when determining Tier D (area). The correct divisor for Tier C is 2.5 (see HRS Table 2-5). In addition, the HRS states "[i]f the volume of the source . . . can be determined, do not evaluate the area measure. Instead, assign the area measure a value of 0 and proceed to section 2.4.2.1.5." The Kerr-McGee HRS documentation record states "Not scored" for Tier D (area) rather than assigning a zero.

CSC recommends recalculating the volume assigned value for Source 1 using the 2.5 divisor rather than 13. CSC also recommends changing the area assigned value to zero from "Not scored."

The volume of Source No. 1 was recalculated.

2.4 Source 2 Background Samples

The HRS documentation record indicates that the background samples selected were comparable to the contaminated samples because they were collected "during the same sampling event, in accordance with the same sampling procedures and from the same soil type." However, to present a sufficient argument that these background samples were appropriately selected, more information should be presented regarding why these samples were picked to be background. For example, the HRS documentation record could indicate that the background samples were selected because they were collected from an area that was the least disturbed/least impacted by facility operations, or because they were the most representative of native soils.

Also, unlike the 2004 source data, a subsurface background from 8 feet bls was not provided for either the 2000 or 2002 data. As some of the subsurface samples were collected from as deep as 13 feet bls, having background samples collected from similar depths would help ensure that appropriately similar background and contaminated samples are being compared.

CSC suggests that additional information be added to the rationale for why the background source samples selected were appropriate. In addition, CSC recommends that, if available, deeper subsurface background samples be provided for the 2000 and 2002 data sets. Alternatively, the Region could document that the soil type is uniform throughout the entire length of the soil column where the contamination is being documented for this source.

Background samples were not collected during the RI. Samples collected from areas that were not past disposal areas or away from past facility operations were selected to represent background conditions. Background samples are not available at all depths. Information regarding soil uniformity in the entire soil column also is not available.

2.5 Other Possible Sources

Several other sources of concern are mentioned as present at the site. However, no hazardous substances have been associated with these possible sources, as is suggested by the Office of General Counsel (OGC) for considering a site feature as an "other possible source." Also, the last bullet seems to be incomplete and has no reference citations.

CSC suggests that either this paragraph be expanded to document that hazardous substances are associated with these sources or the language be removed. In addition, please complete the last bullet including reference citations or remove it from the HRS documentation record.

The HRS documentation record was revised as recommended.

2.6 Analytical Data – Sources 1 and 2

2.6.1 Source 1 and 2 Analytical Data Quality and Documentation Citations

Only partial quality assurance/quality control (QA/QC) information is cited in the HRS documentation record and/or provided in the HRS package for data used to document the presence of hazardous substances in Sources 1 and 2 (Backfilled Surface Impoundment, and Contaminated Soil Throughout the Kerr-McGee Property, respectively). This information is needed to demonstrate that the analytical data are of known and documented quality. (Analytical data for Sources 1 and 2 were generated using EPA non-Contract Laboratory Program [CLP] methods.)

Source 1 and 2 samples were collected by Shaw Environmental, Inc., on behalf of Kerr-McGee during the Remedial Investigation (RI), as part of an Administrative Order on Consent (AOC) entered into between EPA and Kerr-McGee. Samples were analyzed by Severn Trent Laboratories, Inc., in Tallahassee, Florida, using EPA SW-846 methods 6010 (metals) and 8081 (pesticides). Analytical data were validated by EPA Region 4 Science and Ecosystem Support Division (SESD).

Specific information for Source 1 and 2 analytical data that is needed but was not cited in the HRS documentation record and/or provided in the HRS package is the following:

- Analytical data sheets or other documentation containing information such as sample weight, and extract volume for sample analysis; the analytical data sheets provided only contain reported concentrations, dilution factors, and percents solids;

- Sample Quantitation Limits (SQLs) as defined by the HRS (i.e., the quantity of a substance that can be reasonably quantified given the limits of detection for the methods of analysis and sample characteristics that may affect quantitation [e.g., dilution, concentration]), or Method Detection Limits (MDLs) if SQLs are not available; reporting limits used by the laboratory adjusted for dilution factors were used to assess/"censor" the data as detected in the data in the HRS documentation record (see section 2.6.3 of this QA Review Letter for more information); and

- Sampling documentation and information (e.g., Sampling and Analysis Plans [SAPs] and Quality Assurance Project Plans [QAPPs], a signed copy of the AOC entered into between EPA and Kerr-McGee); sampling field logs for all of the samples (e.g., the HRS documentation record in Table 4 of the HRS documentation record does not cite Reference 5, Appendix D [sampling field logs] for the analytical results for alpha-BHC in sample KMC-IT-SB9-1).

CSC's suggestions in the 1st QA Review Letter were discussed during the June 2, 2009, conference call. The Region indicated that it requested but did not receive the raw data package from the laboratory. It also pointed out that Reference 23 is the SAP and QAPP. CSC recommends that, if possible, the Region inquire again as to whether analytical data sheets are available and cite the field log books where applicable. Therefore, CSC's previous recommendations for analytical data sheets and logbooks from the 1st QA letter still apply, as detailed below:

CSC suggests that:

- *Analytical data sheets or other documentation containing information such as sample weight and extract volume in addition to analyte concentrations, percent solids, and dilution factors prepared by the laboratory that has conducted the analysis be included in the HRS package and cited in the HRS documentation record;*

  Analytical data sheets from the laboratory are included in the HRS documentation record. The analytical data sheets contain percent solids and dilution factors. However, the complete analytical data packages (with sample volume) were not available. Tetra Tech contacted the laboratory and has provided additional information to clarify the detection lmits used in the HRS documentation record.

- *The Region cite field log books (i.e., Reference 5, Appendix D) for all of the samples used in the evaluation.*

  Reference 5, Appendix D was cited throughout the HRS documentation record. However, some samples could not be located in Appendix D. In some cases, Appendix F was cited for some samples used in the evaluation.

SQL values are discussed in section 2.6.3 of this QA Review Letter.

2.6.2 Source 2 –Assessment of Qualified Data

The HRS documentation record lists many sample results as being qualified with a "U," "J," and "UJ." It appears that the assessment of the qualifiers is inconsistent with what is reported in the laboratory analysis sheets and the data validation report. Some of the inconsistencies may have resulted from the use of the letter "J" to signify different qualifiers as defined in the laboratory analysis reports, data validation reports, and the EPA fact sheet "Using Qualified Data to Document an Observed Release and Observed Contamination." Consequently, not all of the analytical data that are listed as adjusted are qualified consistent with the above mentioned EPA fact sheet.

The qualifiers used in the laboratory analysis reports for the background soil samples used in the HRS evaluation (e.g., Reference 33, page 284) are as follows:

"U" = Compound was analyzed for but not detected;

"J" = Estimated value reported between the method detection limit and the reporting limit;

"P" = Analysis yielded greater than 40% relative percent difference between the primary column and the confirmation column. The lowest value has been reported; and

"B" = This analyte was detected in the associated method blank.

The qualifiers discussed in the EPA fact sheet (page 6) are as follows:

"U" = The substance or analyte was analyzed for, but no quantifiable concentration was found at or above the contract required quantitation limit (CRQL);

"J" = The analyte was positively identified-the associated numerical value is the approximate concentration of the analyte in the sample. The "J" qualifier indicates that one or more QA/QC requirements have not met contract required acceptance criteria but the instrumentation was functioning properly during the analysis. For example, a "J" qualifier may indicate that the sample was difficult to analyze or that the value may lie near the low end of the calibration range of the instrument. "J" data are considered biased, but provide definitive identification; and

"UJ" = The analyte was not quantifiable at or above the CRQL. In addition to not being quantifiable, one or more QA/QC requirements have not met contract acceptance criteria.

Based on these definitions, it appears that the qualifiers used in the laboratory analysis report to qualify samples relate to the qualifiers discussed in the EPA fact sheet as follows:

"P" = "J" biased unknown;

"B" = "J" biased high;

"U" = "U"; note that "U" in the laboratory analysis report means that the analyte was not detected at or above the detection limit and the reporting limit used by the laboratory, and consequently not detected at or above the quantitation limit;

"J" = no qualifier or "U"; note that, while above the MDL, the value may or may not be above the quantitation limit, and that the reported value does not correspond to UJ because no QA/QC requirements have been identified as being unmet;

"JP" = "UJ" biased unknown or "J" biased unknown; note that the value may or may not be above the quantitation limit; and

"JB" = "UJ" biased high or "J" biased high; note that the value may or may not be above the quantitation limit.

CSC's suggestions in the 1st QA Review Letter were discussed during the June 2, 2009, conference call. The Region stated that it will expand the existing references or create a new reference containing the laboratory sheets for the qualified data. Any qualifier changes made by the Region during its data review will be reflected on these sheets, and an explanation for the changes will accompany the sheets.

In some cases, the data qualifiers presented on the analytical sheets differ from those in the HRS documentation record because the qualifiers were obtained from the analytical data summary tables with the validated results. In some cases, the data validator did not take action for some flags assigned by the laboratory. In such cases, Tetra Tech reviewed the data and validation reports and prepared a project note that summarizes modifications to data qualifiers. These modifications were made based on the EPA CLP National Functional Guidelines and the factsheet "Using Qualified Data to Document an Observed Release and Observed Contamination." See Revised Reference 58.

2.6.3 Sources 1 and 2 – Detection/Quantitation Limits

CSC was unable to verify the detection limits used to calculate the SQLs in Reference 38 or determine whether the detection limits associated with Source 1 and 2 samples are detection/quantitation limits as defined in HRS Section 1.1, *Definitions*. As a result, CSC cannot verify that the SQLs were calculated correctly. The HRS-defined detection/quantitation limits are used when assessing whether source samples document presence of hazardous substances. To assess that hazardous substances were actually found in the documented samples and significantly above the background concentrations in soil samples, it is important that the detected values are compared to the appropriate detection/quantitation limits for the analysis. Analyte concentrations reported in the background samples as not detected at or above the detection/quantitation limits reported by the laboratory may be detected at or above detection/quantitation limits defined in the HRS (i.e., SQLs or MDLs). Analyte concentrations reported in background and contaminated source samples as detected at or above reporting limits are also detected at or above SQLs or MDLs since the laboratory appears to distinguish between concentrations above MDLs but below reporting limits (data flagged with "J" by the laboratory) and those below both MDLs and reporting limits (data flagged with "U" by the laboratory).

CSC's suggestions in the 1st QA Review Letter were discussed during the June 2, 2009, conference call. The Region agreed to clarify in the HRS documentation record and/or applicable references its explanation of the SQLs and how it determined these SQLs.

The laboratory was contacted to provide clarification on the reporting /quantitation limits. This information is summarized in Reference 79. Based on discussions during the July 29, 2009 conference call, the laboratory reporing/quantitation limits are referred to as contract reporting limits and sample specific reporting limits in the HRS documentation record. Based on information provided by the laboratory, the sample specific reporting limits are equivalent to sample quantitation limits, as defined in the HRS rule.

2.6.4 Source Sample KMC-IT-SB64-0-RE

In Table 5 on page 36 of the HRS documentation record, sample KMC-IT-SB64-0-RE is presented to document contamination associated with Source 2. The sample has several hazardous substance concentrations that are qualified "J" and "UJ." There appears to be a duplicate sample, however, that was collected for this location that seems to contain fewer qualifiers.

CSC suggests that the Region review whether it would be more appropriate to use the duplicate sample for location KMC-IT-SB64. If found to be appropriate, please revise.

Sample KMC-IT-SB64-0-RE was replaced with duplicate sample, Dup # 5 (SB-64-0).

3.0 Technical Issues – Ground Water Pathway

3.0.1 Pathway Description

3.0.1.1 Strata Thicknesses and Depths

The total thickness of the Hawthorne Group in the vicinity of the Kerr-McGee property is presented inconsistently throughout the HRS documentation record. For example, page 53 indicates that the total thickness is approximately 500 feet in the vicinity of the Kerr-McGee property. Pages 54 and 66 indicate that the confining unit/Hawthorne Group respectively is 425 feet thick in the vicinity of the Kerr-McGee property. It appears that the discrepancy may be related to whether the entire Hawthorne Group (including the Charlton Formation) is being discussed or whether just the confining unit (not including the Charlton Formation) was meant to be discussed.

The thickness of the Hawthorne Group is also in conflict with the depth bls designated at the top of the Ocala Limestone and correspondingly the top of the Upper Floridan aquifer. Pages 53-54 of the HRS documentation record indicate that the Ocala Limestone is approximately 470 feet bls in the vicinity of the Kerr-McGee property. However, if you sum the thicknesses given on page 53 for the overlying strata (alluvium/terrace deposits (10-15 feet) + Hawthorne Group (500 feet) = 510 to 515 feet), the Ocala Limestone should begin at approximately 510 to 515 feet bls.

A similar conflict is shown if you replace the Hawthorne Group thickness value on page 53 with the upper confining unit value given on page 54 and presume the thickness of the alluvium/terrace deposits and Charlton Formation combined is 150 feet, which is the point at which the upper confining layer begins according to information on page 54 of the HRS documentation record (alluvium/terrace deposits/Charlton Formation (150 feet) + upper confining

unit (425 feet) = 575 feet). This information indicates that the top of the Ocala Limestone should be at approximately 575 feet bls.

CSC's suggestions in the 1st QA Review Letter were discussed during the June 2, 2009, conference call. The Region stated that it will explain in the HRS documentation record that there is variation in the strata in the area. Tetra Tech will select the strata measurements that are most representative of the geology under or near the site for determining travel time and depth to aquifer factor values based on a municipal well log.

The HRS documentation record was revised as recommended.

3.0.1.2 Surficial Aquifer

The surficial aquifer flow direction is inconsistent between pages 54 and 57 of the HRS documentation record. Page 54 indicates that the flow direction is to the east towards the St. John River. Page 57 indicates that the shallow and intermediate zones of the surficial aquifer flow to the southeast, and the deep zone of the surficial aquifer flows to the north.

The fact that the shallow and intermediate zones have a different flow direction than the deep zone also seems to imply that the deep zone is a different and distinct aquifer for HRS purposes than the shallow and intermediate zones.

CSC suggests that the Region clarify its explanation of ground water flow for the surficial aquifer. CSC also recommends that the Region clarify whether the surficial/intermediate zones are a separate aquifer from the deep zone. If it is the case that they are separate aquifers, please document them as such within the HRS documentation record, as well as document interconnection between the two aquifers. Alternatively, the Region may document that there is a site-related observed release in each aquifer.

The HRS documentation record was revised as recommended. Some of the discrepancies are due to regional versus site-specific data.

3.0.1.3 Karst

To consider an aquifer to be karst for HRS purposes, the HRS requires the scorer to document that the aquifer is karst specifically underneath the sources (see HRS Section 3.0.1.3). The only statement that presents this argument is in section 3.3.2.4 (Population – Potential Contamination) section) of the HRS documentation record. The statement indicates that "[k]arst ground water flow occurs in the Floridan aquifer within the entire 4-mile radius of the Kerr-McGee property." This argument was not provided, however, in the geology description, nor does the description specify that both the Upper and Lower Floridan aquifers are karst throughout the entire 4-mile target distance limit (TDL). Instead, the description just covers the Floridan aquifer in general.

CSC suggests that the Region add the karst argument to Section 3.0.1 of the HRS documentation record. CSC also recommends that the argument be expanded to document that both the Upper and Lower Floridan aquifers are karst throughout the entire 4-mile TDL.

The HRS documentation record was revised as recommended.

3.0.1.4 Aquifer Interconnection/Discontinuities

The only documentation presented to document interconnection between the Upper and Lower Floridan aquifers is a statement that the middle semi-confining unit is breached by fractures that allow ground water to flow from the Lower to the Upper aquifer. This statement does not adequately establish interconnection between the Upper and Lower Floridan aquifers for HRS purposes for a couple of reasons. First, the statement is not specific enough to document that the fractures completely transect the confining unit. Second, the HRS requires that the aquifers are interconnected within 2 miles of the sources to combine them for scoring purposes (see HRS Section 3.0.1.2.1).

Regarding the fractures, the given statement indicates that the fractures that breach the middle semi-confining unit allow ground water to flow from the *Lower to the Upper* aquifer. In theory then, contamination from the surficial aquifer, if it somehow breached the upper confining unit to the Upper Floridan aquifer, would seemingly be unable to reach any targets drawing water from the Lower Floridan aquifer because the direction of leakage through the middle semi-confining layer is from the Lower Floridan to the Upper Floridan rather than from the Upper Floridan to the Lower Floridan.

Lastly, the geology section of the HRS documentation record does not evaluate aquifer discontinuities as required by HRS Section 3.0.1.2.2.

CSC recommends that the Region clarify and expand the discussion of interconnection between the Upper and Lower Floridan aquifers, specifically within 2 miles of the sources. Adequately establishing aquifer interconnection between the Upper and Lower Floridan aquifers is critical to the site score as currently presented because the primary targets draw from the Lower Floridan. If aquifer interconnection cannot be adequately documented, CSC suggests that the Region re-evaluate potential to release to the Lower Floridan rather than to the combined Floridan aquifer system. CSC also recommends that the Region include a discussion of any aquifer discontinuities that occur within the 4-mile TDL. For guidance on determining aquifer boundaries, discontinuities, and interconnections, please see Section 7.1 of the Hazard Ranking System Guidance Manual.

The HRS documentation record was revised as recommended.

3.1 Likelihood of Release

3.1.1 Analytical Data

3.1.1.1 Observed Release Analytical Data Quality and Documentation Citations

Only partial QA/QC information is cited in the HRS documentation record and/or provided in the HRS package for data used to document an observed release to the ground water pathway. This information is needed to demonstrate that the analytical data are of known and documented quality.

Sample collection, analysis, and review and validation procedures for observed release samples are the same as those specified in section 2.6.1, *Source 1 and 2 Analytical Data Quality and Documentation Citations*, of this QA Review Letter. Information that is needed but was not cited in the HRS documentation record and/or provided in the HRS package for the observed release

samples is the same as that identified for the source samples in section 2.6.1 of this QA Review Letter.

See responses in the source section.

3.1.1.2 Assessment of Qualified Data

Please see section 2.6.2, *Source 2 – Assessment of Qualified Data* of this QA Review Letter for recommendations on how to assess qualified data for this site. The information specified in section 2.6.2 for the background soil/contaminated soil samples applies to the background/observed samples.

See responses to qualified data in the source section.

3.1.1.3 Detection/Quantitation Limits

CSC was unable to verify the detection limits used to calculate the SQLs in Reference 38 or determine whether the detection limits associated with the observed release samples are detection/quantitation limits as defined in HRS Section 1.1, *Definitions.* As a result, CSC cannot verify that the SQLs were calculated correctly. The HRS-defined detection/quantitation limits are used in determining that observed release sample concentrations are significantly above background levels in order to meet observed release criteria in HRS Table 2-3. (Per Table 2-3, significant increase in observed release samples is established as detection above its own detection limit, and detection above the detection limit for background samples if background samples are not detected, or detection at a concentration that is three times the detected concentration in background samples used to establish the background levels.) Please see section 2.6.3, *Source 1 and 2 – Detection/Quantitation Limits* of this QA Review Letter.

See responses to qualified data in the source section.

3.1.1.4 Dissolved vs. Total Metals

CSC was unable to determine whether the observed release samples were analyzed for dissolved metals or total metals. It is preferable to analyze for dissolved metals in order to document that sample concentrations reflect an actual release of metals to ground water as opposed to particulates suspended in ground water. Total metals analysis includes any metals found sorbed to particulates in the sample, and therefore, may skew the results.

CSC's suggestions in the 1st QA Review Letter were discussed during the June 2, 2009, conference call. The Region agreed to verify whether turbidity readings are available for the observed release ground water data. CSC suggests that if turbidity readings are not available, it would at least be helpful to verify and document in a reference, if possible, that proper purging of each well was conducted before samples were collected.

The metals analysis conducted on the observed release samples was for total metals.

3.1.2 Observed Release to Surficial Aquifer – Attribution

The attribution section does not include several standard arguments that are typically included and specifically would be important to this attribution discussion.

CSC suggests that the attribution section include a discussion of the sources and their lack of containment, a discussion of the background locations relative to the ground water flow and contaminated wells in the surficial aquifer system, and a discussion of other possible sites in the area that might be contributing to the release. The discussion of other possible sites in the area is particularly important to this attribution section because of the industrial/commercial area in which the site is located.

The HRS documentation record was revised as recommended.

3.1.3 Potential to Release to the Floridan Aquifer System – Depth to Aquifer

Section 3.1.2.3 of the HRS documentation record (page 66) indicates that the depth to the lowest known point of hazardous substances is 13 feet bls. This reflects the deepest subsurface soil sample from Source 2. However, the actual depth to lowest known point of hazardous substances should reflect the top of the deepest screening interval of the observed release wells, which is 70 feet bls. The HRS documentation record should specifically indicate that this distance (70 feet) was subtracted from the thickness of the top layer.

Given the discrepancies as to the strata thicknesses as discussed in section 3.0.1.1 of this QA Review Letter, it would be prudent for the Region to clarify that the surficial aquifer in Table 17 of the HRS documentation record reflects only the alluvium/terrace deposits/Charlton Formation, and the Hawthorne Unit (Group) reflects only the Coosawhatchee Formation, Marks Head Formation, and Penny Farms Formation.

CSC recommends that the depth to the lowest known point of hazardous substances be changed to 70 feet bls, and the aquifer factor value be revised and explained accordingly.

CSC also suggests that the Region double check the layer thickness reflected in Table 17 of the HRS documentation record. Further, CSC suggests that the Hawthorne Unit in Table 17 be changed to Upper Confining Unit, so readers are not confused into thinking that the Charlton Formation is being included in both the first (surficial aquifer) and second (Hawthorne Unit [Group]) layers.

The HRS documentation record was revised as recommended.

3.1.4 Potential to Release to the Floridan Aquifer System – Travel Time

The travel time factor value was not determined correctly. The HRS requires that the scorer consider the hydraulic conductivity of each layer of geologic material between the lowest known point of hazardous substances at the site and the top of the aquifer being evaluated with some caveats depending on the thickness of the layer, whether the layer is karst, etc. (see HRS Section 3.1.2.4). Therefore, each individual geologic layer within each formation constituting the Hawthorne Group should be presented separately in Table 18 of the HRS documentation record. Identification of the layers present may be obtained from a well log. Note that if no aquifer interconnection can be established between the Upper and Lower Floridan aquifers, then potential to release should be evaluated down to the top of the Lower Floridan aquifer.

CSC recommends that the travel time factor value be revised so as to follow the requirements put forth in HRS Section 3.1.2.4.

The HRS documentation record was revised as recommended.

3.2 Waste Characteristics

3.2.1 Toxicity/Mobility Table

Footnote b states "Endrin ketone is [a] Comprehensive Environmental Response, Compensation, and Liability Act hazardous substance; however, it is not listed in the Superfund Chemical Data Matrix."

CSC suggests that this footnote be changed to "Endrin ketone is a Comprehensive Environmental Response, Compensation, and Liability Act hazardous substance; however, toxicity and mobility values have not been determined."

The HRS documentation record was revised as recommended.

3.3 Targets

3.3.1 Percent Well Contribution

The HRS requires that the scorer determine whether any one well within a blended system contributes more than 40 percent of the water to its respective system when apportioning targets (see HRS Section 3.3.2). Section 3.3 of the HRS documentation record does not discuss whether any of the wells in the North and South Grids contribute more than 40 percent of the water in those systems.

CSC suggests that the Region determine whether any wells in the North and South Grids contribute more than 40 percent of the water to those systems.

None of the wells in the North and South Grids contribute more that 40 percent of the water. This information has been included in the HRS documentation record.

3.3.2 Nearest Well

A nearest well factor value of 20 is assigned in section 3.3.1 of the HRS documentation record. However, no explanation was provided for how the value 20 was derived.

CSC suggests that the Region provide an explanation for why 20 was assigned as the nearest well factor value (i.e., presumably due to the karst aquifer).

The HRS documentation record was revised as recommended.

3.3.3 Wellhead Protection Area

The HRS requires that the Wellhead Protection Area factor value be evaluated based on Wellhead Protection Areas designated according to Section 1428 of the Safe Drinking Water Act, as amended (see HRS Section 3.3.4). The Kerr-McGee HRS documentation record does not document whether the Wellhead Protection Areas within the 4-mile TDL meet this criterion.

Also, the HRS documentation record does not explain how the Wellhead Protection Area factor value of 5 was derived nor does it cite the HRS for this assigned value.

CSC recommends that the Region document whether the Wellhead Protection Areas within the 4-mile TDL were designated according to Section 1428 of the Safe Drinking Water Act. Also, CSC suggests that the Region, citing the HRS, add an explanation for why a factor value of 5 is assigned.

The HRS documentation record was revised as recommended.

4.0 Referencing and Editorial Issues

Specific referencing and documentation issues identified in the HRS documentation record are noted below. Additional documentation issues are noted in the attached annotated copy of the HRS documentation record.

4.1 Editorial Issues

4.1.1 Site Name

The site name designated for this site in the HRS documentation record is Kerr-McGee Chemical Corporation (Kerr-McGee). It is not appropriate, however, to include the "Kerr-McGee" abbreviation within the official name of the site. It should also be noted that in CERCLIS, the site name is listed as "Kerr-McGee Chemical Corp" with the word "Corporation" abbreviated. In addition, the HRS documentation record is not consistent with its hyphenation of "Kerr-McGee."

CSC recommends that the "(Kerr-McGee)" be removed from the site name, and that the hyphenation of Kerr-McGee be verified and carried out consistently in the HRS documentation record. Please also determine whether the word "Corporation" should be abbreviated to correspond to CERCLIS.

The HRS documentation record was revised as recommended. Also, on July 27, 2009, the site name was revised in CERCLIS to differentiate between other Kerr-McGee sites. The

official name provided by the EPA Region 4 NPL Coordinator is "Kerr-McGee Chemical Corp – Jacksonville."

4.1.2 Latitude/Longitude

The longitude provided for the site location is -81.6265 degrees West. However, it is redundant to present the longitude with both a "-" sign and "West."

CSC suggests that the longitude be presented as either -81.6265 degrees or 81.6265 degrees West.

The HRS documentation record was revised as recommended.

4.1.3 Contractor Names

Throughout the HRS documentation record but particularly in the site description, it is mentioned that certain contracting companies conducted sampling events (e.g., Ecology and Environment, Inc. (E&E)). However, the discussions throughout the HRS documentation record do not always indicate for whom the sampling events were conducted.

CSC recommends that the package preparer be consistent with indicating for whom sampling events were conducted when mentioning contractor names. Alternatively, it would be less confusing to refer to sampling events by the name of the sponsor. For example, say that EPA conducted an expanded site inspection instead of E&E or Kerr-McGee conducted an RI instead of Shaw Environmental.

The HRS documentation record was revised as recommended.

4.1.4 Site Figures

Figure 2 contains a dashed yellow line that is oriented through the center of the Kerr-McGee property. The legend does not identify what this dashed yellow line represents. Figure 3 contains source samples and associated background samples. However, these points are not labeled with their sample ID numbers.

CSC suggests that the Region revise the Figure 2 legend to identify the dashed yellow line. CSC also suggests that Figure 3 be revised to include sample ID numbers for all of the sampling points on the figure.

The HRS documentation record was revised as recommended.

4.1.5 Transcription Errors

Within the source and observed release data tables, there are numerous transcription errors in the SQL columns. There also are several transcription errors in Table 21: Municipal Drinking Water Wells Within a 4-Mile Radius Of Kerr-McGee Upper and Lower Floridan Aquifers.

CSC has noted these instances, where identified, in the annotated HRS documentation record. However, CSC suggests that the Region also thoroughly review these tables and confirm CSC's annotations to ensure that all errors are identified and revised where appropriate.

The HRS documentation record was revised as recommended.

4.2 Referencing Issues

4.2.1 Missing/Incomplete References

- Reference 4: The reference list indicates that this document should be five pages; however, CSC received only two pages. **A revised Reference 4 was submitted in May.**
- Reference 11: Page two is missing from this reference. It could possibly be a copy error. **A revised Reference 11 was submitted in May.**
  Reference 16: The reference list indicates that this document should be 747 pages; however, CSC received only 165 pages. **Reference 16 contains 165 pages. The reference list will be updated in the next submission of the HRS documentation record.**
  Reference 17: The reference list indicates that this document should be 165 pages; however, CSC received 929 pages. **Reference 17 should be 747 pages. Please double check the page count of the document received.**
- Reference 23: This reference contains several sets of duplicate page numbers. To avoid confusion, it should be renumbered sequentially, and citations should be revised accordingly. **The Reference will be revised as recommended.**
- Reference 25: Plate 5-11 and page D3 are missing from this reference. **Page D3 and Plates 5 through 11 were submitted in May.**
- Reference 40: The reference list indicates that Reference 40 should be the *Hazard Ranking System Guidance Manual.* However, the document that CSC received for Reference 40 is described as follows: Tetra Tech. Project Note to File with Attachment. Subject: Soil Map of the Kerr McGee Chemical Corporation Property and Surrounding areas. April 8th, 2009. 4 pages. Reference 40 citations within the documentation record do seem to be referring to this project note, though, so this issue is probably just a reference list change omission. **Reference 40 should be the project note with attached soil map as indicated above.**
- Reference 58: The date given in the reference list is April 7, 2009. It should be April 8, 2009. **The HRS documentation record will be revised as noted.**
  Reference 63: The reference list indicates that this document should be 704 pages; however, CSC received only 42 pages. **The PDF document submitted on compact disc contains 704 pages. However, because most of those pages were not cited in the HRS documentation record, only 42 pages were submitted in hard copy.**
- Reference 60: CSC has not yet received this reference. (Note: CSC has also not received Reference 20: however, this reference number is listed as reserved in the reference list.)
  Reference 60 was provided in May. Reference 20 was deleted. To avoid errors with renumbering references, the reference was listed as "reserved" on the reference list. A new Reference 20 will be added when the HRS documentation record is resubmitted.

In an email dated May 14, 2009, the Region sent revised copies of References 4, 11, and 60 and missing Reference 25, page D3 and plates 5-11. During the June 2, 2009, conference call, the Region agreed to re-send Reference 17 as a PDF file on a CD-ROM. The new Reference 17 will have sequential page numbers inserted into the document.

All reference issues identified above have been addressed and new or revised references are included in the HRS package.

4.2.2 References Not Cited

CSC was unable to find the following references cited in the HRS documentation record: References 16, 17, 19, 22, 35, 37, 44, 49, and 56.

CSC recommends that these references either be cited within the HRS documentation record or be removed from the HRS package. If they are removed from the HRS package, CSC suggests that that reference numbers be designated "Reference Reserved" to avoid having to renumber all of the references. CSC notes, however, that excessive use of "Reference Reserved" can be viewed as implying that EPA has not provided all relevant documentation available for the site.

Tetra Tech has ensured that all references listed are cited in the HRS documentation record.

5.0 Potential Listing Policy Issues

Please see section 2.1 of this QA Review Letter regarding scoring the surface water pathway and section 2.2 regarding the rationale for listing the site on the NPL.

The HRS documentation record was revised as recommended.